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EXAMINER

CULBERT, ROBERTS P

ART UNIT PAPER NUMBER

1763

DATE MAILED: 06/12/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/899,591

Applicant(s)

MARCZAK ET AL.

Examiner

Roberts Culbert

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12 and 33-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-51 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-10, 13-32, drawn to a method of etching an aluminum material, classified in class 216, subclass 102.
 - II. Claims 11, 12, and 33-36, drawn to an aluminum material, classified in class 428, subclass 41.1.
 - III. Claims 37-51, drawn to an apparatus for etching an aluminum material, classified in class 156, subclass 345.2.

The inventions are distinct, each from the other because of the following reasons:

Inventions III and II are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case the apparatus can be used for making a different product such as modifying a substrate that is not made from aluminum.

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process. For example, the product may be formed by laser ablation or selective deposition instead of etching.

Inventions I and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and

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materially different process. (MPEP § 806.05(e)). In this case) the apparatus as claimed can be used to practice another and materially different process such as modifying a work-piece not made from aluminum.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and recognized divergent subject matter, and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Gregory P. Bondarenko on 5/27/03 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-10 and 13-32. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11, 12, and 33-51 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation " the anodized aluminum". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of U.S. Patent 5,367,196 to Mahulikar.

Referring to figure 1, Bednarz teaches a method for etching an aluminum work-piece that includes providing a continuous web of aluminum (11) including a first side and a second side, and selectively etching the first side by spraying and rolling with an etching composition (37) such as sulfuric acid (Col. 3, Lines 50-55).

Bednarz does not teach that the etching process creates a rough surface, however it is well known in the art of etching aluminum that an anodized surface may be made rough simply by modifying process conditions. See for example, U.S. Patent 5,367,196 to Mahulikar (Col. 5, Lines 13-16).

It would have been obvious to one of ordinary skill in the art at the time of invention to roughen the aluminum surface in order to improve adhesion as suggested by Mahulikar.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of U.S. Patent 5,367,196 to Mahulikar and in further view of U.S. Patent 3,898,095 to Berdan.

As applied above, Bednarz in view of Mahulikar discloses the method of the invention substantially as claimed, but does not teach preventing the etching composition from contacting the second side by applying fluids against the second side.

Referring to the sole figure, Berdan teaches a method for etching a continuous web of aluminum (10) having a first side and a second side that includes preventing the etching composition from contacting the second side by applying fluids (22) against the second side. See also (Col. 3, Lines 41-49).

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It would have been obvious to one of ordinary skill in the art to prevent the etching composition from contacting the second side by applying fluids against the second side as shown by Berdan in order to prevent unwanted etching of the second side from the etching composition contacting the first side.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of U.S. Patent 5,367,196 to Mahulikar and in further view of U.S. Patent 4,124,437 to Bond.

As applied above, Bednarz in view of Mahulikar discloses the method of the invention substantially as claimed, but does not teach preventing the etching composition from contacting the second side by masking the second side with a film or sheet.

Bond teaches a method for selectively etching one side of continuous metallic work-piece by covering one side with a removable protective film. See abstract and (Col. 3, Lines 21-29).

It would have been obvious to one of ordinary skill in the art at the time of invention to use the protective film as shown by Bond in order to prevent unwanted etching of the second side from the etching composition contacting the first side.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of U.S. Patent 5,367,196 to Mahulikar and in further view of U.S. Patent 4,013,498 to Frantzen.

As applied above, Bednarz in view of Mahulikar discloses the method of the invention substantially as claimed, but does not teach preventing the etching composition from contacting the second side by covering the second side with a protective shield.

Frantzen teaches covering a sheet of metallic material with a removable shield on one side to prevent contact with an etching composition. See Abstract.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the shield as shown by Frantzen in order to prevent unwanted etching of the second side from the etching composition contacting the first side.

7. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of the admitted prior art and U.S. Patent 5,367,196 to Mahulikar.

As applied above, Bednarz in view of Mahulikar discloses the method of the invention substantially as claimed, but does not teach that the etching process is used on a previously anodized substrate.

However applicant has admitted in the background of the instant application that it is known that anodizing with sulfuric acid provides a decorative finish and that phosphoric acid produces an adhesive surface. Applicant also admits that most anodized aluminum is manufactured in a two-sided sheet where both surfaces are anodized with either sulfuric acid or phosphoric acid.

It would have been obvious to one of ordinary skill in the art to use the invention of Bednarz to etch the common stock material (i.e. aluminum anodized on both sides with either phosphoric or sulfuric acid) using the other acid (i.e. the acid not used in the formation of the stock material) in order to provide a material that may be easily adhered and is also decorative and easily colored.

Since the etching composition and material to be etched are the same in both the prior art references and the claimed invention, it may be assumed that either the bonding layer would be inherently formed about 4-10 nanometers in depth as claimed, or that the claimed feature arises from essential limitations not present in the claim.

8. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of U.S. Patent 5,367,196 to Mahulikar and in further view of U.S. Patent 3,776,783 to Venkata.

As applied above, Bednarz in view of Mahulikar discloses the method of the invention substantially as claimed, but does not teach the use of a solution of sodium hydroxide from 0.1 to 0.5 molar for a period of 20-60 seconds.

Venkata teaches a method for etching aluminum oxide on an aluminum surface using a solution of sodium hydroxide with a 2-20% solution (approximately 0.5-5.0 molar) for a period of 1 to 6 minutes.

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It would have been obvious to one of ordinary skill in the art at the time of invention to use a solution of sodium hydroxide with a 2-20% solution for a period of 1 to 6 minutes as shown by Venkata in order to etch the aluminum oxide layer without the need for electrical energy as taught by Venkata (Col. 1, Lines 45-46).

9. Claims 13-15, 20, 21, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of the admitted prior art.

Referring to figure 1, Bednarz teaches a method for etching an aluminum work-piece that includes providing a continuous web of aluminum (11) including a first side and a second side, selectively etching the first side by spraying and rolling with an etching composition such as sulfuric acid (Col. 3, Lines 50-55). Figure 1 shows that the etching composition is prevented from contacting the topside of the work-piece. The figure also shows that the etching composition is applied to the aluminum article by advancing the over a plurality of rolling members (14a, 14b, 16, and 20) including surfaces having an etching composition (37) thereon.

Bednarz does not teach that the etching process is used on a previously anodized substrate or that the adhesive surface is produced.

However applicant has admitted in the background of the instant application that it is known that anodizing with sulfuric acid provides a decorative finish and that phosphoric acid produces an adhesive surface. Applicant also admits that most anodized aluminum is manufactured in a two-sided sheet where both surfaces are anodized with either sulfuric acid or phosphoric acid.

It would have been obvious to one of ordinary skill in the art to use the invention of Bednarz to etch the common stock material (i.e. aluminum anodized on both sides with either phosphoric or sulfuric acid) using the other acid (i.e. the acid not used in the formation of the stock material) in order to provide a material that may be easily adhered and is also decorative and easily colored.

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10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of the admitted prior art and in further view of U.S. Patent 3,898,095 to Berdan and U.S. Patent 4,124,437 to Bond.

As applied above, Bednarz in view of the admitted prior art discloses the method of the invention substantially as claimed, but does not teach covering a decorative side with a film and dipping the aluminum article in an etching composition.

Bond teaches a method for selectively etching one side of continuous metallic work-piece by covering one side with a removable protective film. See abstract and (Col. 3, Lines 21-29).

It would have been obvious to one of ordinary skill in the art at the time of invention to use the protective film as shown by Bond in order to prevent unwanted etching of the second side from the etching composition contacting the first side.

Bond does not teach dipping the aluminum article in an etching composition. Bond shows application of the etching composition by spraying.

Referring to the sole figure, Berdan does teach that a continuous web of aluminum may be uniformly etched by dipping in an etching composition.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the dipping method with the protective film of Bond in order to insure complete coverage of the etching composition in the well-known manner.

11. Claims 16 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of the admitted prior art and in further view of U.S. Patent 4,124,437 to Bond.

As applied above, Bednarz in view of the admitted prior art discloses the method of the invention substantially as claimed, but does not teach preventing the etching composition from contacting the second side by masking the second side with a film or sheet.

Bond teaches a method for selectively etching one side of continuous metallic work-piece by covering one side with a removable protective film. See abstract and (Col. 3, Lines 21-29).

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It would have been obvious to one of ordinary skill in the art at the time of invention to use the protective film as shown by Bond in order to prevent unwanted etching of the second side from the etching composition contacting the first side.

12. Claim 17 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of the admitted prior art and in further view of U.S. Patent 4,013,498 to Frantzen.

As applied above, Bednarz in view of the admitted prior art discloses the method of the invention substantially as claimed, but does not teach preventing the etching composition from contacting the second side by covering the second side with a protective shield.

Frantzen teaches covering a sheet of metallic material with a removable shield on one side to prevent contact with an etching composition. See Abstract.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the shield as shown by Frantzen in order to prevent unwanted etching of the second side from the etching composition contacting the first side.

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of the admitted prior art and in further view of U.S. Patent 5,945,351 to Mathuni

Referring to figure 1, Mathuni teaches a method for selectively etching one surface (14) of a work-piece while preventing the etching composition (15) from contacting the other surfaces (12, and 13) by blowing a protective gas (16) against the other surfaces (Col. 4, Lines 1-2).

It would have been obvious to one of ordinary skill in the art to prevent the etching composition from contacting selected surfaces by applying a protective gas as shown in the invention of Mathuni against the surfaces in order to prevent unwanted etching of the surfaces from the etching composition contacting the at least one surface.

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14. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of the admitted prior art and in further view of U.S. Patent 3,898,095 to Berdan and U.S. Patent 4,338,007 to Fromson.

As applied above, Bednarz in view of the admitted prior art discloses the method of the invention substantially as claimed, but does not teach preventing the etching composition from contacting the other anodized surfaces by cascading a liquid over the other anodized surfaces.

Referring to the sole figure, Berdan teaches a method for etching a continuous web of aluminum (10) having a first side and a second side that includes preventing the etching composition from contacting the second side by applying fluids (22) against the second side. See also (Col. 3, Lines 41-49).

It would have been obvious to one of ordinary skill in the art to prevent the etching composition from contacting the second side by applying fluids against the second side as shown by Berdan in order to prevent unwanted etching of the second side from the etching composition contacting the first side.

Fromson teaches that a method for coating a substrate with a solution (Col. 7, Lines 35-40). Fromson teaches that spraying, immersion, rolling, or cascading may be used to apply the solution. It would have been obvious to one of ordinary skill in the art at the time of invention to use cascading as the application technique as Fromson teaches that this is a preferred method.

15. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of the admitted prior art and in further view of the publication to Collie

As applied above, Bednarz in view of the admitted prior art discloses the method of the invention substantially as claimed, but does not teach the temperature range for the caustic solution.

However the broad ranges cited by applicant are known in the art of etching aluminum and aluminum oxide films as the lower limit ensures a high etch rate thereby reducing etch time, while the upper limit prevents the formation of excessive fumes. See Collie page 44, for example. Furthermore, Changes in temperature, concentrations, or other process conditions of an old process, do not impart patentability unless the recited changes are critical, i.e., they produce a new and unexpected result. *In re* Boesch, 205 USPQ 215 (CCPA 1980).

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16. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of the admitted prior art and in further view of U.S. Patent 3,898,095 to Berdan.

As applied above, Bednarz in view of the admitted prior art discloses the method of the invention substantially as claimed, but does not teach preventing the etching composition from contacting the second anodized surface by administering a fluid against the second anodized surface.

Referring to the sole figure, Berdan teaches a method for etching a continuous web of aluminum (10) having a first side and a second side that includes preventing the etching composition from contacting the second side by applying fluids (22) against the second side. See also (Col. 3, Lines 41-49).

It would have been obvious to one of ordinary skill in the art to prevent the etching composition from contacting the second side by applying fluids against the second side as shown by Berdan in order to prevent unwanted etching of the second side from the etching composition contacting the first side.

17. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,367,122 to Bednarz in view of the admitted prior art and in further view of U.S. Patent 3,776,783 to Venkata.

As applied above, Bednarz in view of the admitted prior art discloses the method of the invention substantially as claimed, but does not teach exposure of the surface to the caustic solution for 20-60 seconds.

Venkata teaches a method for etching aluminum oxide on an aluminum surface using a solution of sodium hydroxide for a period of 1 to 6 minutes.

It would have been obvious to one of ordinary skill in the art at the time of invention to use a solution of sodium hydroxide with for a period of 1 to 6 minutes as shown by Venkata in order to etch the aluminum oxide layer without the need for electrical energy as taught by Venkata (Col. 1, Lines 45-46).

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mohr teaches that it is known to post-treat an anodized aluminum surface with phosphoric acid to improve the hydrophilic properties of the aluminum oxide layer.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (703) 305-7965. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

R. Culbert

June 5, 2003


GREGORY MILLS
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